

# Work Order ID 63749

Friday, November 12, 2010 10:39:54 AM



Page 1

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/26/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*K*

Date: 10/11/12

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D350-748-241	Rev E

100 0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-201

CHG001

*Sulalzi*

*HJ Per BG 11-01-28*

110 0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

120 0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

*6*

*Sulalzi*

*(H)*

W/O: 63749		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
10.12.13	141	- DEFLECT TUBE TO 3060 <sup>12</sup> FOR 1 MINUTE - RE-MEASURE HEIGHT & WIDTH	CP	10.12.13	1	CP 10.12.13 081042	S 06/12/13	
10.12.13	142	NDT TUBE FOLLOWING DEFLECTION TEST				CP 10.12.13 081042		

Part No: D350-748-201 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63749

Friday, November 12, 2010 10:39:54 AM



Page 2

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/26/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

125

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

\*\*\*Stress relief\*\*\*

Heat treat crosstube as per QSI010 4.3

Temp: 375

Start time: 2:00

Finish time: 5:50pm

SAD 10-11-23

127

QC/ Inspect part completeness to step on W/O

0.00



QC

QCIS

Memo

0.00

Quality Control

Soluh204

(70)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63749

Friday, November 12, 2010 10:39:54 AM



Page 3

Item ID: D350-748-201

Accept



Setup Start



Revision IP:

Item Name: Crosstube Installation, High Aft

Stop



Start Date: 11/12/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/26/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Crosstubes	0.00							
	Crosstubes								
Crosstubes	Memo	0.00							
	1-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs, Set-up drill table as per QSI 010								
	2-Deburr								
	3-Engrave Part # and Batch # as per Dwg D350-748-241								
	4-Remove all marks from tube within limits of D350-748-241								
	5- Apply a light coat of LPS3 on the interior of tube Batch: _____								
140	QC6- Inspect dimensions to drawing	0.00							
	QC								
Quality Control	Memo	0.00							

SAD  
10-11-29

→ SAD 10-12-01

See  
Attache →  
Email

8/10/12/13

P10  
on Back of First Page

AutoSource - VDT issue R10 to acumen

R10 11/13

CL 10/12/109 ①

Back: ensure copy of VDT results rec'd  
attached to WIO:

11/12/10 ①

W/O: 63749		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
10/12/09	175	ODT per QSI 038 before + after load testing per eng. this time only P/O: 13113	CY	10/11/09	1	h 10/12/09	
		rec'd + inspect		10/12/10	1	h	

Part No: D350-748-201 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63749



Page 4

Friday, November 12, 2010 10:39:54 AM

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/26/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150

Outsource process-Cadplate per QSI017 4.1.9.1

0.00



Outsource3

Memo

0.00

Outsource process - Cad plate

Issue P/O: 13128  
Stress relief at 375° for 5 hours  
Magnetic Particle Inspect per ASTM E1444  
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2  
Embrittle relief at 375° for 8 hours, Chromate Treat  
Possible Supplier: Southwest United Industries  
Ensure Certificate of Conformity is attached

CX 10/12/14 ①

160

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure certificate of conformity is attached

11/11/18 ①

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

twist = 0.054"

span 2 @ 0.015 issue P/O to Aueren LPT as per ASTM 1417 level 2 as LPT as per QSI038

Sublet 11.01.24

CX 11/01/18

P/O: 13378

11/11/26

rec'd + inspect + attached c/c to W/O

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



[illegible]

Friday, November 12, 2010 10:39:54 AM

[illegible]

\_\_\_\_\_



10/11

**Customer:**

[illegible]

**Customer:**

[illegible]**Date:**

**SECRET**

0.00

1-Prime inside crosstube as per QSI 005 4.2  
2-Paint Outside of Tube as per Dart QSI 005 4.2

**RESEARCH DESIGN AND METHODS**

0.00

Then, Wrap in plastic bag to protect from scratches

[illegible]

0.00

- 1-Install Ground wire Insert, then insert screw and washer
- 2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.
- 3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

ET 11-01-26

MA 11 01 27 ①

11 01 28 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

[illegible]

Page 6

**Accept**

[illegible]

**Setup Start**

[REDACTED]

**Stop**

[illegible]**Cust Item ID:**

**Author's address:** Department of Psychology,  
University of California, San Diego,  
La Jolla, CA 92037, USA.  
**E-mail:** jgibson@ucsd.edu

**Customer:**

**Reference:**

Run Start

\_\_\_\_\_

**Stop**



**Insp.  
Stamp**

0.00

[illegible]

QC

## Memo

0.00

## Quality Control

## Pick Kit

0,00

\_\_\_\_\_

### Packaging

## Memo

0.00

## Packaging

QC4- 100% Inspect kits for completeness

0.00

\_\_\_\_\_

OC

## Memo

0.00

## Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63749

Friday, November 12, 2010 10:39:54 AM



Page 7

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/26/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	Packaging	0.00							
	Packaging								
	Packaging								
	Memo	0.00							
	Identify and pack for shipping as per PPPD350-748-201								
	Location: <u>103</u>								
	PPP Rev: <u>103</u>								
250	QC21- Final Inspection - Work Order Release	0.00							
	QC	0.00							
	Quality Control								

11/21/10 SP

11/02/10 JF

11-02-1  
①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Friday, November 12, 2010 10:39:58 AM

Page 1

Work Order ID: 63749

Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010

Required Date: 11/26/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev: A New Issue 06-07-05 JLM  
 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC  
 IPP Rev: E 08.12.11 Step17 was step 21 KJ Verified by:EC IPP Rev:F  
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-241TRN Crosstube Turning Detail		Manufactured	No			110	Each	3.0000	1	1			
<div> <div>359586</div> <div>SAO 10-11-23</div> <div>①</div> </div>													
				Location	Loc Qty	Loc Code							
				LG	3								
				59549	1								
				59551	1								
				59587	1								
ALS4-1032-225 Insert		Purchased	No			200	Each	4,520.000	1	1			
				Location	Loc Qty	Loc Code							
				PK011	4520								
				110768	4520								
AN960JD10 Washer	NAS1149D0363J	Purchased	No			200	Each	8.0000	1	1			
				Location	Loc Qty	Loc Code							
				ST	6								
				107715	6								
				ST335	2								
				105792	2								

116025

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Page 2

Friday, November 12, 2010 10:39:58 AM

Work Order ID: 63749

Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 11/12/2010

Required Date: 11/26/2010

Start Qty: 1.00

Required Qty: 1.00

D2856-400

Manufactured No

200 f

123.8130 1.181 1.243158



Abraison Strip



11-01-28

B# 63735

## Location

## Loc Qty

## Loc Code

ST403

123.8130421

56626

0.00004211

59920

123.813

1- cut as per dwg D2856

D3502-1

Manufactured No

200 Each

48.0000 2 2



Support



11-01-28

## Location

## Loc Qty

## Loc Code

ST063

24

61206

12

61843

12

ST066

24

50287

23

52903

1

MS21920-20

Purchased No

200 Each

57.0000 2 2



Clamp (per MIL-DTL-8783C)



11-01-28

## Location

## Loc Qty

## Loc Code

LG

57

112624

2

114687

1

115057

4

115736

50

Friday, November 12, 2010 10:39:58 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Friday, November 12, 2010 10:39:58 AM

Work Order ID: 63749

Parent Item: D350-748-201

Parent Item Name: Crossstube Installation, High Aft

Start Date: 11/12/2010

Required Date: 11/26/2010

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-10

Purchased

No

200

Each

131.0000

1

1



Screw



11-01-28

Location

Loc Qty

Loc Code

ST291

131

112794

3

112940

28

115935

100

AN4-41A

Purchased

No

220

Each

252.0000

8

8



Bolt



11/1/28

Location

Loc Qty

Loc Code

ST360

252

111424

4

113359

1

114941

57

115108

100

115374

40

115705

50

AN4-6A

Purchased

No

220

Each

952.0000

16

16



Bolt



11/1/28

Location

Loc Qty

Loc Code

ST356

952

112933

96

113149

17

115108

139

115457

500

115936

200

133

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 4

Friday, November 12, 2010 10:39:58 AM

Work Order ID: 63749

Parent Item: D350-748-201

Parent Item Name: Crosstuf Installation, High Aft

Start Date: 11/12/2010

Required Date: 11/26/2010

Start Qty: 1.00

Required Qty: 1.00

AN5-32A Purchased No 220 Each 252.0000 4  
Bolt

Location	Loc Qty	Loc Code
ST340	252	
114405	42	
115016	50	
115108	50	
115589	60	
115698	50	

11/12/2010

AN960JD416 NAS1149D0463J Purchased No 220 Each 24.0000 32  
Washer

Location	Loc Qty	Loc Code
ST300	24	
113288	24	

11/12/2010

AN960JD516 NAS1149D0563J Purchased No 220 Each 34.0000 8  
Washer

Location	Loc Qty	Loc Code
ST	34	
103694	18	
107534	12	
109287	4	

11/12/2010

D3500-1 Manufactured No 220 Each 31.0000 4  
Saddle

Location	Loc Qty	Loc Code
ST424	31	
55605	2	
60489	4	
61650	25	

11/12/2010

Friday, November 12, 2010 10:39:58 AM

Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Friday, November 12, 2010 10:39:58 AM

Work Order ID: 63749

Parent Item: D350-748-201

Parent Item Name: Crossstube Installation, High Aft

Start Date: 11/12/2010

Required Date: 11/26/2010

Start Qty: 1.00

Required Qty: 1.00

D3501-1

Manufactured No

220

Each

410.0000

16

16



Bushing



11/12/2010

Location

Loc Qty

Loc Code

ST066

410

45402

15

45918

112

48268

3

53779

20

61196

100

61837

60

61984

100

16

MS21042L4

Purchased

No

220

Each

2,556.000

24

24



Nut



11/16/2010

11/12/2010

Location

Loc Qty

Loc Code

ST300

2556

113422

25

114523

8

115589

1423

115621

1100

MS21042L5

Purchased

No

220

Each

1,389.000

4

4



Nut



11/12/2010

Location

Loc Qty

Loc Code

ST139

26

114813

26

ST300

1363

115156

163

115594

500

116104

200

116105

500

✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

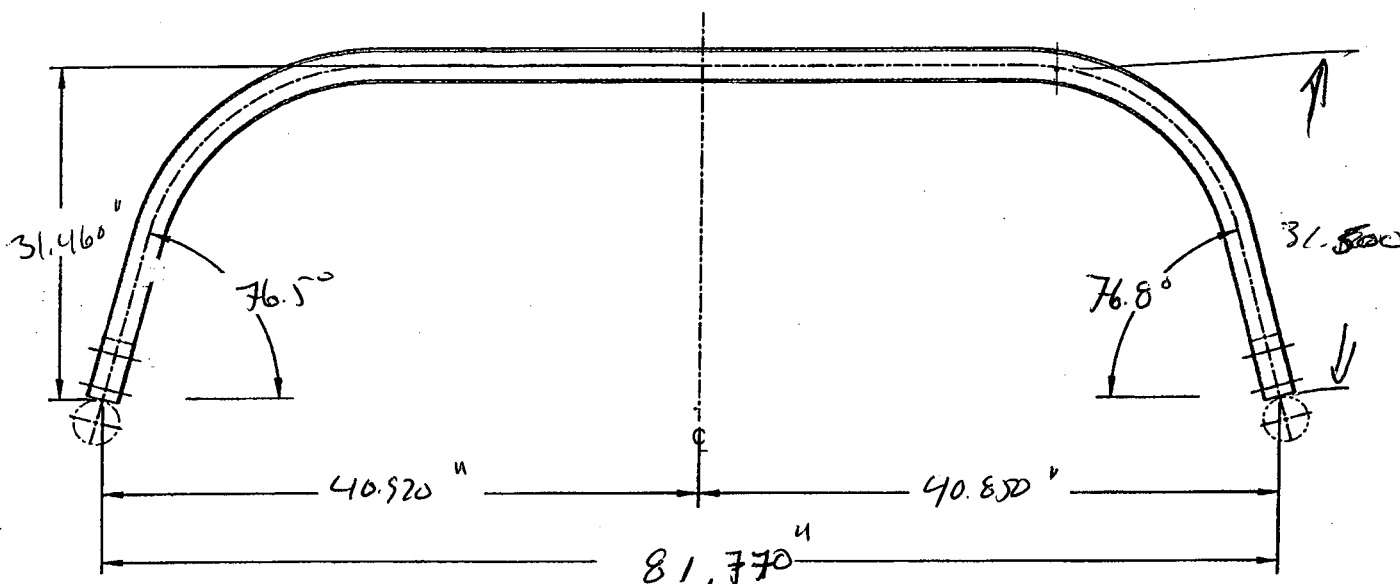
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	<i>63749</i>
<b>Description:</b> Crosstube High Aft (AS350/355)	<b>Part Number:</b>	<b>D350-748-201</b>
<b>Inspection Dwg:</b> D350-748-241	<b>Rev:</b> E	<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
<i>twist = .163" OK P.10.11.23</i>

QC15 Inspection	<i>8</i>
Date	<i>10/11/23</i>

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	<i>[Signature]</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

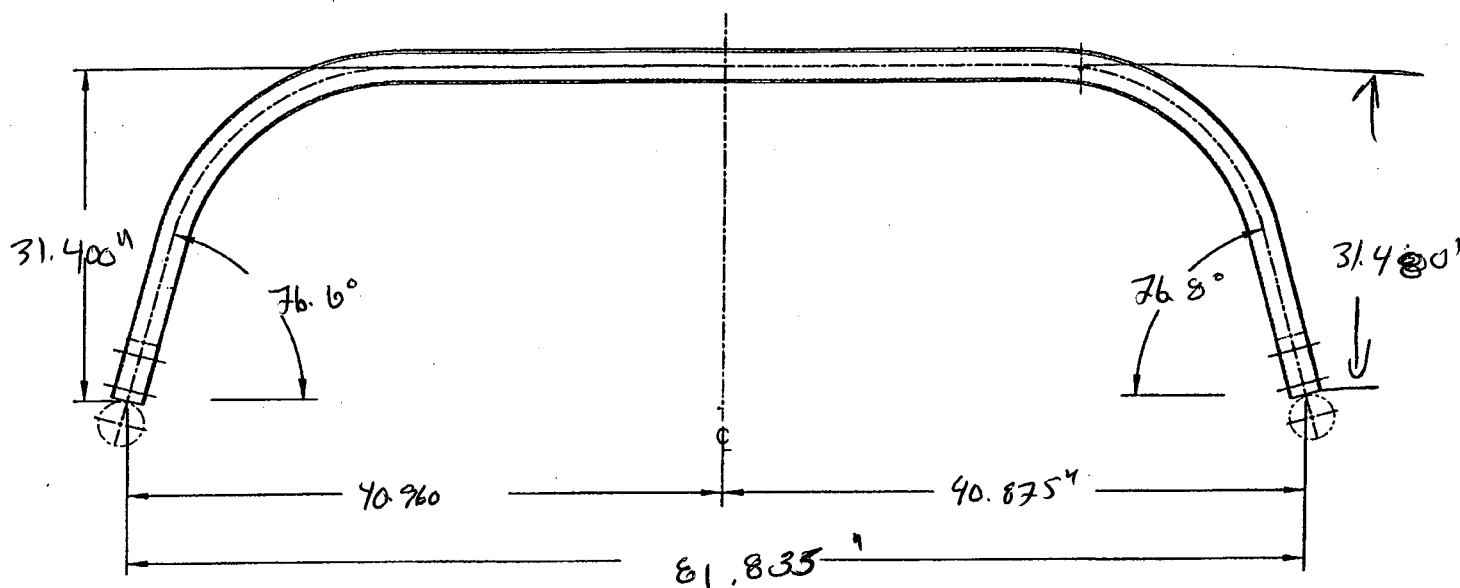
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
twist 2.15"
Remains after stress Relief

QC15 Inspection	S
Date	10/14/24

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6018-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AEIS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6018-125  
FINISHED LENGTH = 122.700±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø.297 HOLE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 63749

3810-11-15

OK P10.11.15

UNDER REVIEW

10.13

RELEASED  
2009-10-29

E	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D350-748-241	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

**Dart Aerospace Ltd**

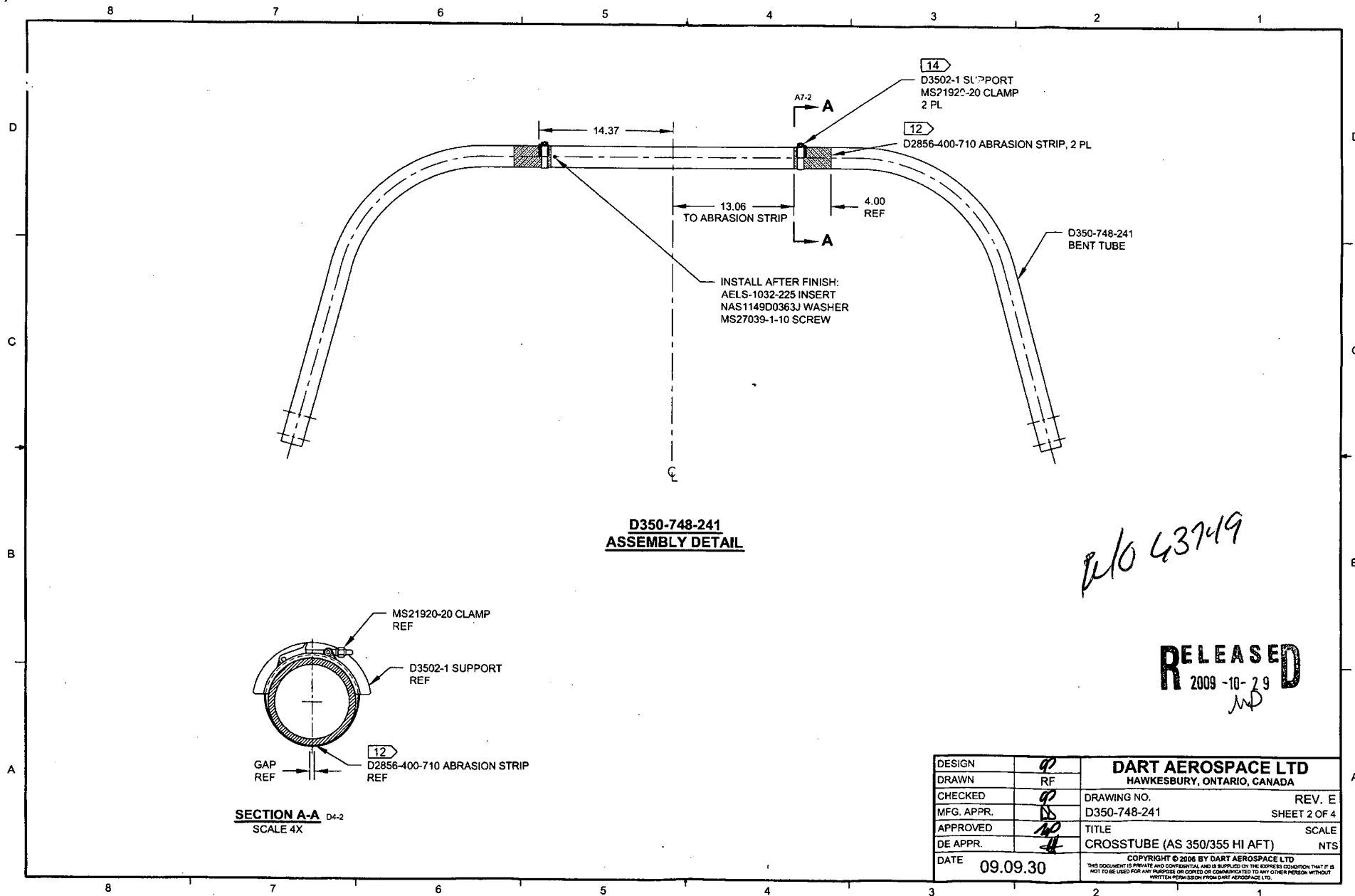
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



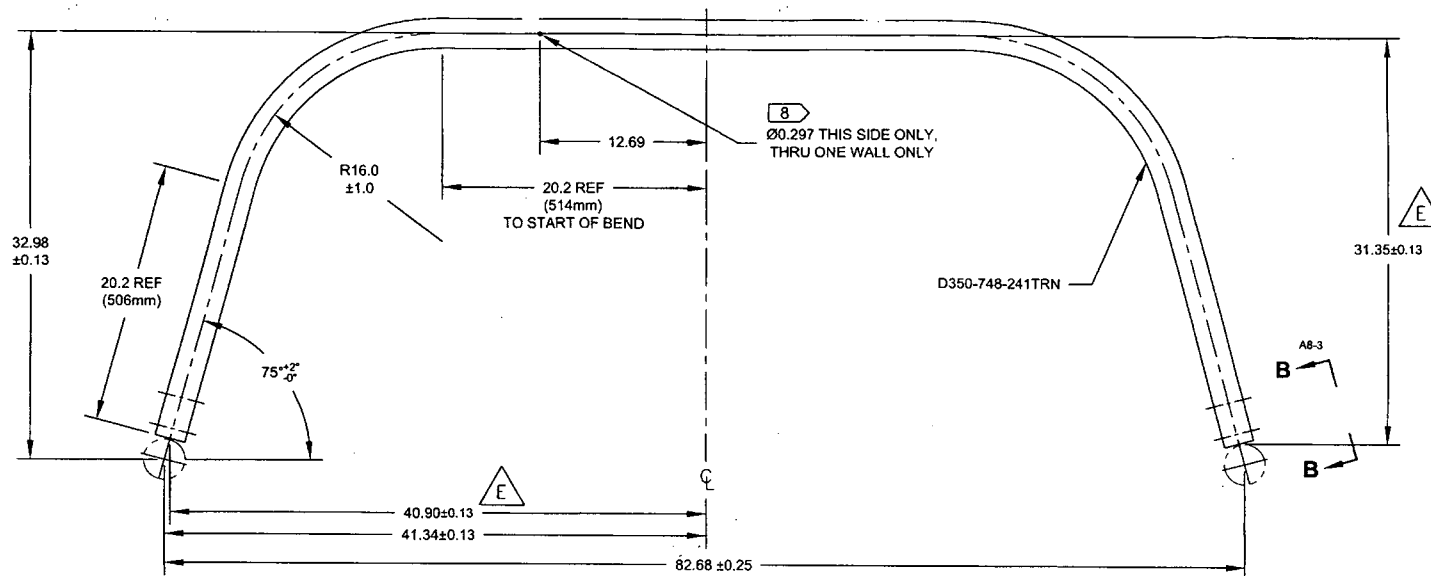
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

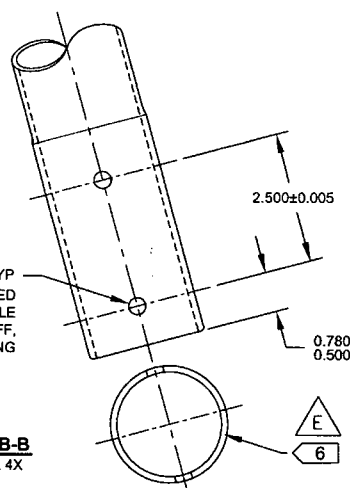


**D350-748-241**  
**BENDING AND DRILLING DETAIL** 10

wb 43749

Ø0.323<sup>+0.005</sup>/<sub>-0.000</sub> THRU, TYP  
HOLE TO BE ALIGNED  
WITHIN ±0.001 OF HOLE  
ON OTHER SIDE OF CUFF,  
TO BE DRILLED AFTER BENDING

C2-3 **VIEW B-B**  
SCALE 4X



**RELEASED**  
2009-10-29  
MD

DESIGN	9P	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9P	DRAWING NO.	REV. E
MFG. APPR.	SS	D350-748-241	SHEET 3 OF 4
APPROVED	14P	TITLE	SCALE
DE APPR.	14P	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2006 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			



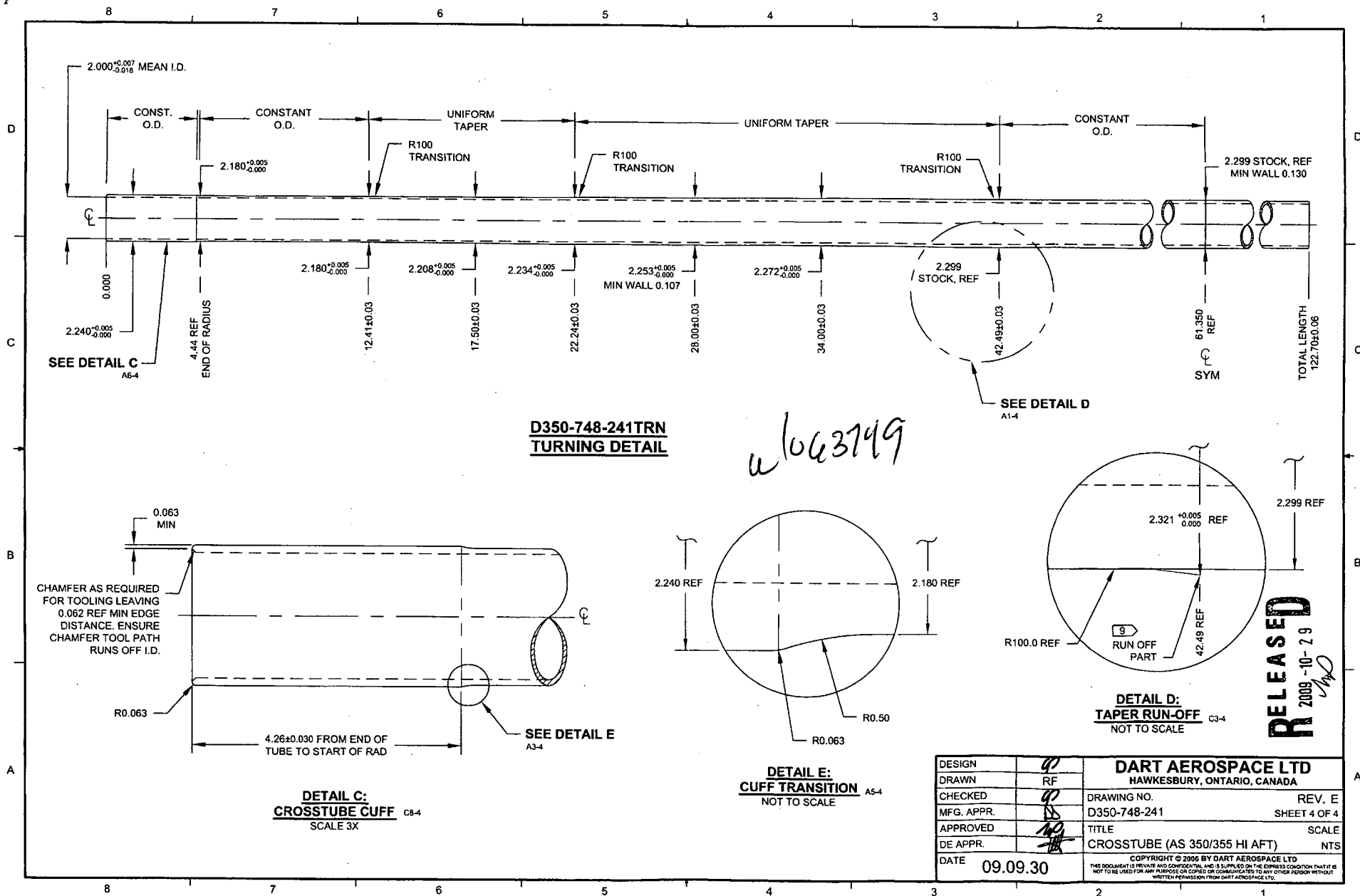
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**L Lacelle**

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** May 11, 2010 12:37 PM  
**To:** 'L Lacelle'; 'Mike Petsche'  
**Cc:** 'Bill Beckett'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com; 'Chantal Lavoie'  
**Subject:** RE: 350 crosstubes

Linda,

As discussed, if the tubes have been structurally tested, it has been documented on the work orders, and Chris has signed off on them, then it is acceptable to me to release the parts.

David

---

**From:** L Lacelle [mailto:llacelle@dartaero.com]  
**Sent:** Tuesday, May 11, 2010 8:37 AM  
**To:** 'David Shepherd'; 'Mike Petsche'  
**Cc:** 'Bill Beckett'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com; 'Chantal Lavoie'  
**Subject:** RE: 350 crosstubes

Now that testing is done, can we ship out the batch that as been ready to heat treat?

LL

---

**From:** David Shepherd [mailto:dshepherd@dartaero.com]  
**Sent:** April 27, 2010 3:40 PM  
**To:** 'Mike Petsche'  
**Cc:** 'Bill Beckett'; 'L Lacelle'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com  
**Subject:** 350 crosstubes

Mike,

I discussed the 350 crosstube load testing with Bill a little while ago and this plan makes sense to him.

So, my recommendation to clear these crosstubes is to load the fwd crosstubes to 3500 lb and the aft crosstubes to 3000 lb in the deflection test rig and document on the work orders that this test has been completed. Hold max load for 1 minute. Per TP-D350-748-2, these loads represent the maximum load on these crosstubes at gross weight and are below the yield point of the material. I would like to request that Chris Provencal witness these tests and sign off the work orders based on his experience with Dart landing gears. My feeling is that if there is a problem with the parts, it will manifest itself during this load test. I, for one, would feel a lot more confident in testing each crosstube in this manner than relying totally on what Exova has to say. I think it would be very difficult to reach a conclusion on the whole batch on the basis of cracks in two parts from the batch.

I believe that we can accomplish this before next Friday, which also gives us time to hear what Exova has to say in case it has an impact on our decision. So far, what I have seen from Exova shows me that there are fluctuations in the heat treating but the tubes are heat treated to our specification.

For this reason, I believe we should tell DHS that it looks like we will be able to start shipping 350 crosstubes by May 7th pending a successful Engineering test of the material.

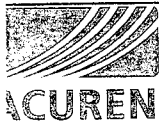
David.

No virus found in this incoming message.

Checked by AVG - www.avg.com

Version: 8.5.437 / Virus Database: 271.1.1/2865 - Release Date: 05/11/10 06:26:00

12/06/10



## LIQUID PENETRANT TEST REPORT

P- 05492

PAGE 1 OF 1  
TIME AM ☒ PM ☐

CLIENT ART AEROSPACE DATE Dec 9/2010  
ATTENTION JOHN KACHLE/MAINTENANCE ACUREN JOB NO. 183-10-C987  
ADDRESS 1270, HIBERDEN POWO No.  
HAUKES BULL, ON WORK LOCATION AS ADDRESS  
ACCEPTANCE STD. ASIM 1417/CS 1038 REV./DATE 2008  
PROJECT Liquid Penetrant Inspection on "CRESTUBE" - HIGH AFT  
ITEM(S) EXAMINED SEE W.O. # IN RESULTS

JOB DESCRIPTION PROCEDURE NO. LT-003 REV./DATE 2008 TECHNIQUE NO. LT-003 REV./DATE 2008  
PART NO. MATERIAL AL30 THICKNESS N/A  
SCOPE PERFORMED A WET FLO INSPECTION BY LIQUID PENETRANT ON LOCK OF THE EXTERNAL SURFACE

TEST DETAILS  
METHOD ☒ FLUORESCENT ☐ VISIBLE ☐ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND MACALFLUOR BLACK LIGHT S/N 13790 ☒ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☒ AMBIENT < 2 fc  
PENETRANT ZK-67 MINIMUM DWELL TIME 10 MIN. LIGHTING EQUIP. ☒ FLASHLIGHT ☐ TROUBLELIGHT ☒ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER H-20 MINIMUM DRY TIME > 10 MIN. OTHER  
DEVELOPER SKD-32 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE FEB 15 2011  
DEVELOPER TYPE ☐ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE  
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☒ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

RESULTS- ☐ METRIC ☒ IMPERIAL

#	ITEMS	RESULTS	ITEMS	RESULTS
1	1	CRESTUBE - W.O. ID 63746	1	✓
2	2	63747	2	✓
3	3	63748	3	✓
4	4	63749	4	✓
5	5	61765	5	✓
6	6	61764	6	✓
7	7	61765	7	✓
8	8	61766	8	✓
B	A	SEE NOTE →	B	A
ITEMS			ACC.	261
5X MOUNTS - W.O. ID 61890			✓	

NOTE: B = BEFORE DEFLATION TEST  
A = AFTER DEFLATION TEST  
ITEM ID: D350-748-201 (Items #1, 2, 3, 4)  
ITEM ID: D350-748-101 (Items #5, 6, 7, 8)  
ITEM ID: D3687-3 (MOUNTS)

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE John Talley PRINT SIGNATURE  
TECHNICIAN (SIGNATURE): [Signature]  
NAME (PRINT): VES DESKISER 1<sup>st</sup> TECHNICIAN 2<sup>nd</sup> TECHNICIAN  
CGSB LEVEL 2 SNT LEVEL 2 CGSB LEVEL 2 SNT LEVEL 2  
CGSB REG. NO. 3049 CGSB REG. NO. 3049

DTR # EC3104  
REPORT REVIEWED BY: NAME INITIALS

WHITE - CLIENT COPY

CANARY - OFFICE COPY

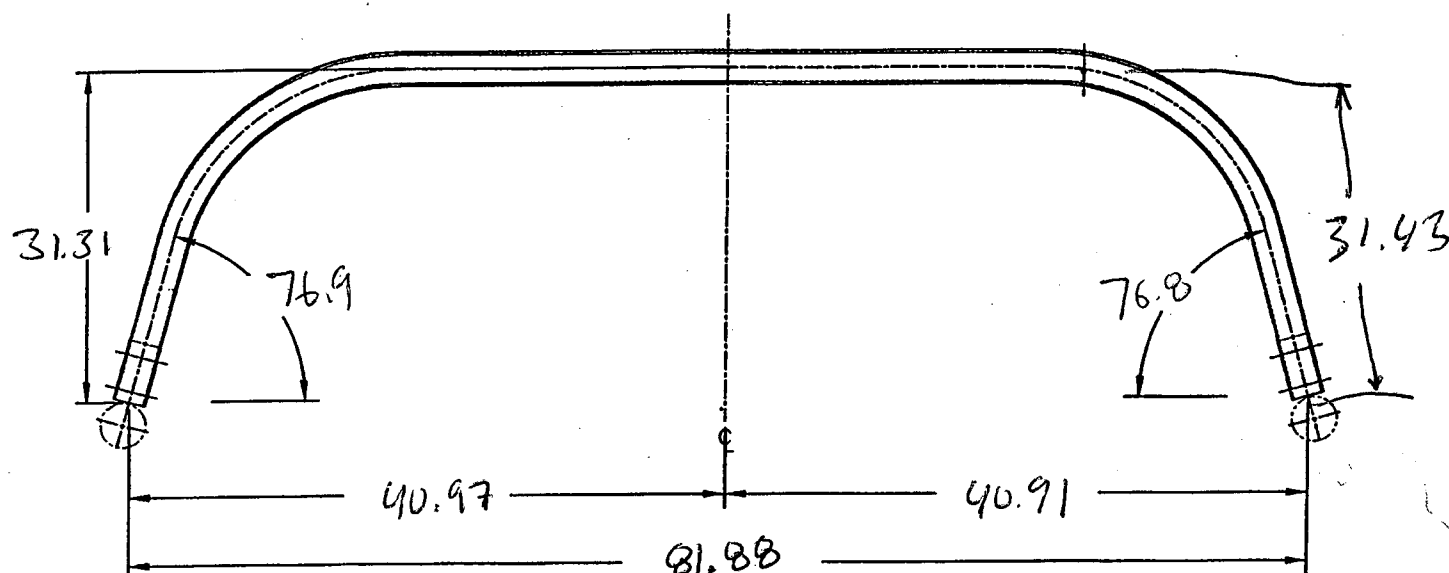
PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

PT Sept 2005

DART AEROSPACE LTD		Work Order:	63749
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
- FOLLOWING DEFLECTION TEST
- ACCEPTABLE UP 10.12.13

QC15 Inspection	UP 10.12.13
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-14-2011

**CONSIGNEE TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 100758  
**INVOICE #:** 52907

**CONTRACT OR  
PURCHASE ORDER #** PO13128

**DESCRIPTION:** SKID

**QTY** 1

**P/N #** D350-748-201

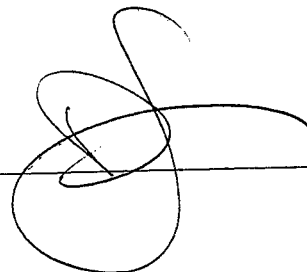
**S/N #** B63749

**STRESS RELIEF BAKE @375 DEG. BAKE HEAT CHART #10-1335.  
MPI INSPECTED IAW ASTM-E-1444. CADMIUM PLATED IAW AMS-  
QQ-P-416C, TYPE 2 YELLOW, CLASS 1. BAKE HEAT CHART #11-5.**

*Sulley*

**CERTIFICATE: I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.**

**Approved Inspector:**





LIQUID PENETRANT TEST REPORT

P- 05496

CLIENT: DART AEROSPACE DATE: JAN/26/2011 PAGE: 1 OF 2  
ATTENTION: LINDA LACELLE / CHANTALE / IAN ACUREN JOB No. 188-11- TIME: AM ☒ PM ☐  
ADDRESS: 1270, ABERDEN ST. PO/WO No. AS ADDRESS  
HAWKESBURY, ON WORK LOCATION: AS ADDRESS  
ACCEPTANCE STD. ASTM1417/GBT-038 REV./DATE 2005  
PROJECT: WET FLUO PENETRANT INSPECTION ON 14 "CROSSTUBES"; 4 "COLLECTIVE BELL CRACK"  
ITEM(S) EXAMINED: SEE BELOW

OB DESCRIPTION: \_\_\_\_\_ PROCEDURE No. LT-003 REV./DATE 2008 TECHNIQUE No. LT-002 REV./DATE 2008  
ART No. \_\_\_\_\_ MATERIAL ALODINE ALUMINUM THICKNESS N/A  
SCOPE: PERFORMED A WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 100% OF THE EXTERNAL SURFACE

TEST DETAILS  
METHOD: ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND: MAGDA FLUX BLACK LIGHT S/N 13798 OUTPUT > 1000 µW/cm² ☒ AMBIENT < 2 fc  
PENETRANT: EG-67 MINIMUM DWELL TIME: 10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER: H2O MINIMUM DRY TIME: >10 MIN. OTHER: \_\_\_\_\_  
DEVELOPER: SKD-52 MINIMUM DWELL TIME: 10 MIN. LIGHT METER S/N: \_\_\_\_\_ CAL DUE DATE: FEB/25/2011  
DEVELOPER TYPE: ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE  
SURFACE CONDITION: ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE: ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ( ☐ METRIC ☒ IMPERIAL )

ITEM	COMMENTS	ACCEPT	REJECT
1	4 X "COLLECTIVE BELL CRACK"	✓	
2	CROSS-TUBE W.O. ID 63591	✓	
3	CROSS-TUBE W.O. ID 63592	✓	
4	CROSS-TUBE W.O. ID 63746	✓	
5	CROSS-TUBE W.O. ID 63747	✓	
6	CROSS-TUBE W.O. ID 63748	✓	
7	CROSS-TUBE W.O. ID 63749	✓	

SEE Page 2 of 2

NOID 64913 → ITEM ID: - D350-748-101 (H.F.)  
ITEM ID: - D350-748-101 (H.F.)  
ITEM ID: - D350-748-101 (H.F.)  
ITEM ID: - D350-748-201 (H.A.)  
ITEM ID: - D350-748-201 (H.A.)  
ITEM ID: - D350-748-201 (H.A.)  
ITEM ID: - D350-748-201 (H.A.)  
ITEM ID: - D350-748-201 (H.A.)

11-01-26

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES  
CLIENT REPRESENTATIVE: Ian Titley DTR # E63121  
TECHNICIAN (SIGNATURE): YVES DESROSIERS REPORT REVIEWED BY: \_\_\_\_\_  
NAME (PRINT): YVES DESROSIERS NAME: \_\_\_\_\_ INITIALS: \_\_\_\_\_  
CGSB LEVEL: 2 SNT LEVEL: 2 CGSB LEVEL: \_\_\_\_\_ SNT LEVEL: \_\_\_\_\_  
CGSB REG. No: 3049 CGSB REG. No: \_\_\_\_\_